9000 Series

GIGABIT SMB EDGE SWITCHES

The Allied Telesis 9000 Series of high performance Gigabit Ethernet switches brings advanced enterprise features to a more affordable level, improving the delivery of converged data for Small and Midsize Businesses (SMB). Support for jumbo Ethernet frames enables higher throughput of time-sensitive data.

The AT-9000/28 28-port Gigabit managed switch features 24 fixed configuration 10/100/1000T ports and an additional 4 × 10/100/1000T-100/1000FX Gigabit-SFP combo ports.

The AT-9000/12POE is a 12-port Gigabit managed switch with 8 fixed configuration 10/100/1000T PoE+ ports, and an additional 4 × 100/1000FX SFP ports. This switch provides centralized power to support surveillance cameras and POS in small environments.

The AT-9000/28POE is a 28-port Gigabit managed switch with 24 fixed configuration 10/100/1000T PoE+ ports, and 4 × 10/100/1000T-100/1000SFP combo ports. It features two power supplies and supports Power over Ethernet Plus (PoE+), delivering up to 30W of centralized power for video surveillance and security applications to support today's business needs.

The AT-9000/28SP is a 28-port Gigabit managed switch with 24 × 100/1000 SFP ports and an additional 4 × 10/100/100T-100/1000FX Gigabit-SFP combo ports.

The AT-9000/52 52-port Gigabit managed switch offers 48 fixed configuration 10/100/1000T ports and 4 × SFP slots.

Key Features

Easy, Industry Standard Management
- » Industry standard CLI
- » Simple, intuitive, full featured Allied Telesis Web Interface
- » Secure, encrypted Web and CLI management with SSHv2 and SSL
- » SNMP v1, v2C, V3

Ideal for Classroom or Retail Environments
- » 12, 28 or 52 active ports
- » Lower power consumption switches
- » Near silent operation

Management Stacking
- » Enhanced Stacking up to 24 units
- » Single IP address stack management

All the QoS Needed for an Open Office, Classroom or Retail Store Environment
- » Eight priority queues
- » IEEE 802.1p for Layer 2 QoS
- » DSCP (DiffServ) for Layer 3 QoS
- » IEEE 802.1p to DSCP remarking traffic ready for transport to the Layer 3 core of the network
- » Layer 2 and Layer 4 Access Control List (ACL)

Securing the Network at its Most Vulnerable Point
- » IEEE 802.1x and RADIUS network login: for advanced control for user authentication and accountability
- » Guest VLAN: to ensure visitors or unauthorized users connect only to services defined by IT such as Internet services
- » Dynamic VLAN
- » TACACS+: for ease of management security administration
- » Fiber model provides even higher security for long distance connectivity

Access Control Lists
- » Access Control Lists enable inspection of incoming frames and classify them based on various criteria. Specific actions can then be applied to these frames in order to more effectively manage the network traffic at Layer 2 through Layer 4. Typically, ACLs are used as a security mechanism, either permitting or denying entry (hence the name Access Control) for frames in a group, but ACLs can also be applied to QoS.

Centralized Power with PoE+
- » The AT-9000/12POE and /28POE support PoE+ with up to 30W per port and a high PoE budget.
- » PoE supports IP security cameras, VoIP phones, Wireless Access Points, POS, access control and help points (intercoms, automatic doors, entry cards, keyless entry), and lighting controllers.

Management Stacking

Enhanced Stacking provides CLI-based management of up to 24 switches with the same effort as for one switch. The Allied Telesis solution uses open standard Ethernet interfaces as stacking links so that many switches can be remotely managed as one IP entity across different sites.

Secure Management

Only authorized administrators can access the management interface of the 9000 Series. Security protocols such as SSL, SSH and SNMPv3 facilitate this protection of your network for both local or remote connections.

Environmentally Friendly Eco-Switch

In keeping with our commitment to environmentally friendly processes and products, the 9000 Series is a green range of products designed to reduce power consumption, minimize hazardous waste and even reduce office noise pollution. Features include the use of high efficiency power supplies and low power chipsets. We have also included an Eco-Switch button on the front panel of all 9000 Series switches. This allows you to conserve additional power by turning off the port and mode LEDs when they are not required.

Low Power Consumption with Near Silent Operation

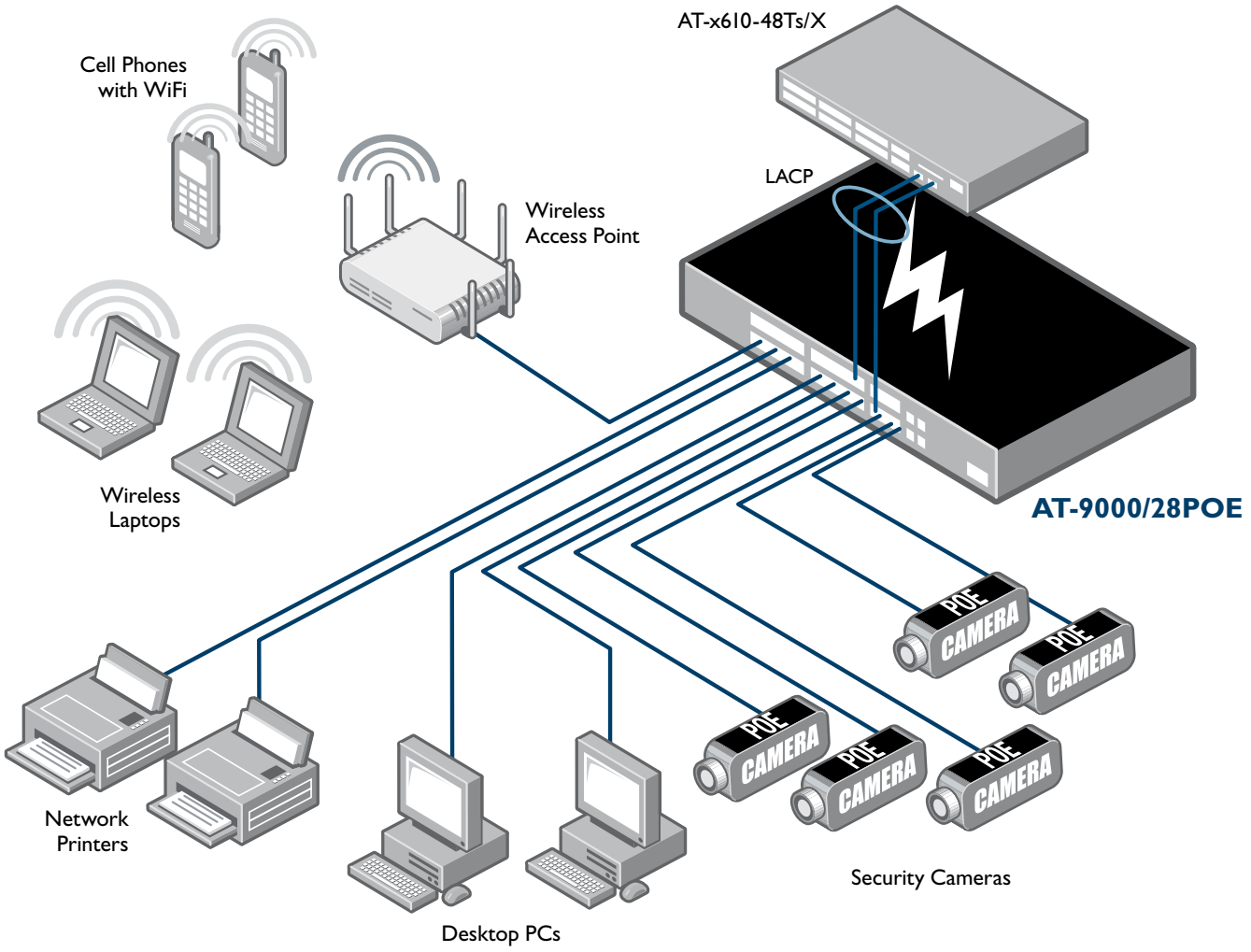
Specifically designed to be usable in a classroom or retail store environment, the 9000 Series uses the latest in low power technologies to minimize power consumption and operational noise.

Ideal Branch Office and Wiring Closet Connectivity

Powerful line rate performance makes this switch ideal for branch offices or the wiring closet of larger offices. The state-of-the art QoS capability of this product ensures reliable delivery of advanced network services such as voice and video, while effectively controlling the continually increasing traffic needs found in today's networks.

Easy Access Networking

Featuring an industry standard CLI and the Allied Telesis intuitive Web interface, the advanced features of the 9000 Series are accessible to a wide range of system administrators. The well-known CLI and Web interfaces significantly reduce learning time and minimize the cost of deployment.



Securing the Network Edge

To ensure the protection of your data, it is important to control access to your network. Protocols such as IEEE 802.1x port-based authentication guarantee that only known users are connected to the network. Unknown users who physically connect can be isolated to a pre-determined part of your network, offering guests such benefits as Internet access while ensuring the integrity of your private network data.

The switch is also fully compliant with Microsoft Network Access Protection (NAP) and Symantec Network Access Control (NAC).

Gigabit and Fast Ethernet SFP Support

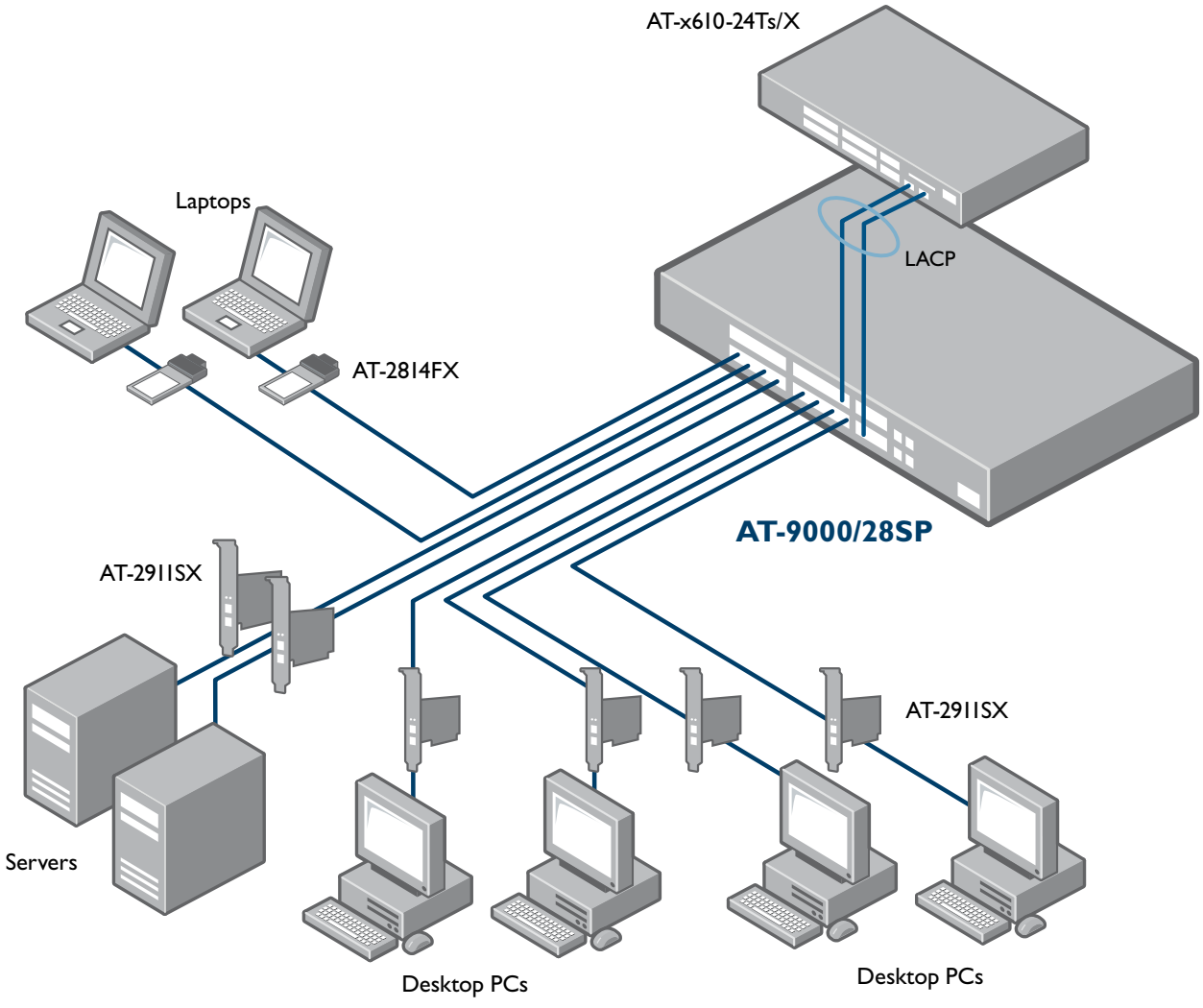
All switches in the 9000 Series support both Gigabit and Fast Ethernet Small Form-factor Pluggables (SFPs). This makes the 9000 Series an ideal family for environments where Gigabit fiber switches will be phased in over time. The 9000 Series allows for connectivity to the legacy 100FX hardware until it is upgraded to Gigabit.

VLAN Double Tagging (Q-in-Q)

VLAN double-tagging can be useful for customers such as Internet Service Providers (ISPs), allowing them to use VLANs internally while mixing traffic from clients that are already VLAN tagged. The first VLAN tag is used by the ISP to route traffic across its own network, while the second VLAN tag is that of the end-user customer. This feature allows end-users to have physically distributed networks, which they can manage themselves, carried over an independent infrastructure.

sFlow

sFlow is an industry-standard technology for monitoring high-speed switched networks. It gives complete visibility into the use of networks enabling performance optimization, accounting and billing for usage, and defense against security threats. Sampled packets sent to a collector ensure sFlow always maintains a real-time view of network traffic.



Specifications

System Capacity
128MB RAM
16MB flash memory
8,192 MAC addresses
4094 VLANs
Packet buffer memory:

AT-9000/12POE	1MB
AT-9000/28	512KB
AT-9000/28POE	512KB
AT-9000/28SP	1MB
AT-9000/52	512KB

Maximum Bandwidth
Non-blocking for all packet sizes
Throughput:

AT-9000/12POE	35.7Mpps
AT-9000/28	41.6Mpps
AT-9000/28POE	41.6Mpps
AT-9000/28SP	41.6Mpps
AT-9000/52	77.35Mpps

Switching capacity:

AT-9000/12POE	24Gbps
AT-9000/28	56Gbps
AT-9000/28POE	56Gbps
AT-9000/28SP	56Gbps
AT-9000/52	104Gbps

Supports 9216 bytes jumbo packets

Wirespeed Switching on all Ethernet Ports
14,880pps for 10Mbps Ethernet
148,800pps for 100Mbps Ethernet
1,488,000pps for 1000Mbps Ethernet

Environmental Specifications
Operating temperature: 0ºC to 40ºC (32ºF to 104ºF)
Storage temperature: -25ºC to 70ºC (-13ºF to 158ºF)
Operating humidity: 5% to 90% non-condensing
Storage humidity: 5% to 95% non-condensing
Operating altitude range, up to 3,000 meters (9,843 feet)

Port Configuration
Auto-negotiation, duplex, MDI/MDI-X, IEEE 802.3x flow control/back pressure
Head of Line (HOL) blocking prevention
Broadcast storm control
Broadcast, multicast, unknown unicast rate limiting
Port mirroring
Ethernet statistics
Bad cable detection
Redundant master/slave management

Ethernet Specifications
RFC 894 Ethernet II encapsulation
IEEE 802.1D MAC bridges
IEEE 802.1Q Virtual LANs
IEEE 802.2 logical link control
IEEE 802.3ab 1000T
IEEE 802.3ad (LACP) link aggregation
IEEE 802.3u 100TX
IEEE 802.3x full-duplex operation
IEEE 802.3z Gigabit Ethernet

Quality of Service (QoS)
IEEE 802.1p QoS
Eight priority queues
Strict priority and weighted round robin
DSCP
Rate limiting
Voice VLAN

Spanning-Tree Protocol
IEEE 802.1D Spanning-Tree Protocol
IEEE 802.1w Rapid Spanning-Tree Protocol
BPDU guard
Loop guard

Management
Web-based GUI
Industry standard command line interface (CLI)
Enhanced Stacking
RFC 854 Telnet client
Telnet server
NTP
RFC 2616 HTTP
RFC 1350 TFTP download/upload
Zmodem download/upload
RFC 1157 SNMPv1/v2c
RFC 2570 SNMPv3
RFC 1215 SNMP traps
RFC 1757 RMON 4 Groups: Stats, History, Alarms, Events
Event log
RFC 3176 sFlow

MIB Support
Allied Telesis private MIB
RFC 1155 MIB
RFC 1213 MIB-II
RFC 1493 Bridge MIB
RFC 1643 Ethernet MIB
RFC 2096 IP forwarding table MIB
RFC 2790 Host MIB
RFC 2863 The Interfaces Group MIB
RFC 3176 sFlow MIB

VLAN
Supports up to 4094 VLAN IDs
Support for 255 active VLANs
IEEE 802.1Q VLAN tag
Port-based and MAC-based VLANs
Port protected VLANs
IEEE 802.1P GVRP
Double VLAN tagging (Q-in-Q)

Link Aggregation
Static trunking
IEEE 802.3ad Link Aggregation Control Protocol (LACP)
Support for 12 groups per device and trunk can support up to eight members per group

Link Discovery
IEEE 802.1ab Link Layer Discovery Protocol (LLDP)
Link Layer Discovery Protocol-Media Endpoint (LLDP-MED)

General Protocols
RFC 768 UDP
RFC 791 IP
RFC 792 ICMP
RFC 793 TCP
RFC 826 ARP
RFC 951 BootP
RFC 1122 Internet host requirements

IP Multicast
Layer 2 multicast forwarding and filtering up to 256 groups
RFC 1112 IGMPv1 snooping
RFC 2236 IGMPv2 snooping
RFC 3376 IGMPv3 snooping

Security / IEEE 802.1x
Layer 2/3/4 permit/deny/mirror ACLs
SSHv2
SSLv3
RFC 2865 Radius
RFC 1492 TACACS+
Port security (limited/dynamic)
IEEE 802.1x port base
IEEE 802.1x multiple host mode
IEEE 802.1x supplicant
IEEE 802.1x authenticator
IEEE 802.1x MD-5
IEEE 802.1x LEAP
IEEE 802.1x PEAP
IEEE 802.1x EAP-TLS
IEEE 802.1x TTLS
IEEE 802.1x dynamic VLANs
IEEE 802.1x guest VLANs
IEEE 802.1x secure VLANs
IEEE 802.1x multiple supplicant mode
IEEE 802.1x piggy-back mode
IEEE 802.1s MSTP
Per-port MAC address limiting
Per-port MAC address filtering
Per-port MAC address lockdown
Microsoft NAP compliant
Symantec NAC support

IPv6
IPv6 host

Compliance Standards
IEEE 802.3 – 10T
IEEE 802.3u – 100TX with auto-negotiation
IEEE 802.3ab – 1000T Gigabit Ethernet
100FX SFP support
1000X SFP support

Safety and Electromagnetic Emissions Certifications
EMI: FCC class A, CISPR 22 class A, EN55022 class A, C-TICK, VCCI
Immunity: EN55024, EN61000-3-2 and EN61000-3-3
Safety: UL 60950 (cULus), EN60950-1 (TUV)
Quality and reliability: MTBF – 340,000 hours

RoHS Standards
Compliant with European and China RoHS standards

Package Description
AT-9000/xx switch
AC power cord
Management cable (RJ-45 to DB-9)
Rubber feet for desktop installation and 19" rack mountable hardware kit accessories

Physical Specifications

	Dimensions (W x D x H)
AT-9000/12POE	33 x 20.3 x 4.4 cm 13 x 8 x 1.73 in
AT-9000/28	44 x 25.6 x 4.4 cm 17.33 x 10.08 x 1.73 in
AT-9000/28POE	44 x 32.1 x 4.4 cm 17.33 x 12.66 x 1.73 in
AT-9000/28SP	44 x 25.6 x 4.4 cm 17.33 x 10.08 x 1.73 in
AT-9000/52	44 x 25.6 x 4.4 cm 17.33 x 10.08 x 1.73 in

Product Weight

	Weight (kg/lbs)
AT-9000/12POE	2.40 kg / 5.3 lb
AT-9000/28	3.62 kg / 8 lb
AT-9000/28POE	4.05 kg / 8.92 lb
AT-9000/28SP	4.01 kg / 8.85 lb
AT-9000/52	4.06 kg / 8.95 lb

Acoustic Noise

AT-9000/12POE	51.3dB
AT-9000/28	37.4dB
AT-9000/28POE	57.9dB
AT-9000/28SP	41.7dB
AT-9000/52	44.3dB

Power Characteristics
Voltage: 100-240V AC, 1A
Frequency: 50/60Hz

PoE Budget

AT-9000/12POE	123.2W
AT-9000/28POE	370W

Maximum Power Supply Efficiency

AT-9000/12POE Standard product with single AC power supply	83%
AT-9000/28 Standard product with single AC power supply	83%
AT-9000/28POE Standard product with dual AC power supply	83%
AT-9000/28SP Standard product with single AC power supply	85%
AT-9000/52 Standard product with single AC power supply	83%

Heat Dissipation (BTU/hr)

	No PoE Load	Max PoE Load
AT-9000/12POE Standard product with single AC power supply	80.6	125
AT-9000/28 Standard product with single AC power supply	132.94	—
AT-9000/28POE Standard product with dual AC power supply	132.94	224
AT-9000/28SP Standard product with single AC power supply	132.94	—
AT-9000/52 Standard product with single AC power supply	153.30	—

Power Consumption
Typical in eco-friendly mode:

AT-9000/12POE Standard product with single AC power supply	23.62W
AT-9000/28 Standard product with single AC power supply	29.58W
AT-9000/28POE Standard product with dual AC power supply	32.4W
AT-9000/28SP Standard product with single AC power supply	35.65W
AT-9000/52 Standard product with single AC power supply	44.92W

Maximum power consumption:

AT-9000/12POE Standard product with single AC power supply	158.6W
AT-9000/28 Standard product with single AC power supply	30.74W
AT-9000/28POE Standard product with dual AC power supply	401.8W
AT-9000/28SP Standard product with single AC power supply	37.42W
AT-9000/52 Standard product with single AC power supply	46.13W

Latency
(at 64 byte)

	10Mbit	100Mbit	1000Mbit
AT-9000/12POE	81.92µs	11.56µs	3.82µs
AT-9000/28	78.77µs	11.25µs	3.79µs
AT-9000/28POE	81.92µs	11.56µs	3.82µs
AT-9000/28SP	78.77µs	25.22µs	3.84µs
AT-9000/52	76.86µs	11.43µs	4.18µs

MODEL	PoE POWER AVAILABLE	MAXIMUM SUPPORTED PoE PORTS		
		IEEE 802.3AF CLASS 2	IEEE 802.3AF CLASS 3	IEEE 802.3AT CLASS 4
AT-9000/12POE	123.2W	8	8	4
AT-9000/28POE	370W	24	24	12

Ordering Information

Gigabit Ethernet Switches

AT-9000/12POE-xx
8 × 10/100/1000T RJ-45 ports
4 SFP ports (4 × 100/1000FX ports)
Internal single AC power supply
(Available soon)

AT-9000/28-xx
24 × 10/100/1000T RJ-45 ports
4 Gigabit-SFP combo ports (4 × 10/100/1000T-100/1000FX ports)
Internal single AC power supply

AT-9000/28POE-xx
24 × 10/100/1000T RJ-45 ports, PoE+
4 Gigabit-SFP combo ports (4 × 10/100/1000T-100/1000FX ports)
Internal dual AC power supply

AT-9000/28SP-xx
24 × 100/1000 SFP ports
4 Gigabit-SFP combo ports (4 × 10/100/1000T-100/1000FX ports)
Internal single AC power supplies

AT-9000/52-xx
48 × 10/100/1000T RJ-45 ports
4 × 100/1000 SFP ports
Internal single AC power supplies

Where xx =
10 for US power cord
20 for no power cord
30 for UK power cord
40 for Australian power cord
50 for European power cord

Country of Origin
Singapore

Small Form Pluggable Optics Modules

AT-SPSX
SFP, MMF, 1000Mbps, 220 / 500 m, 850 nm, LC

AT-SPEX
SFP, MMF, 1000Mbps, 2 km, 1310 nm, LC

AT-SPLX10
SFP, SMF, 1000Mbps, 10 km, 1310 nm, LC

AT-SPLX40
SFP, SMF, 1000Mbps, 40 km, 1310 nm, LC

AT-SPZX80
SFP, SMF, 1000Mbps, 80 km, 1550 nm, LC

AT-SPBD10-13
SFP, SMF, 1000Mbps, 10 km, 1310/1490 nm, LC-BiDi

AT-SPBD10-14
SFP, SMF, 1000Mbps, 10 km, 1490/1310 nm, LC-BiDi

AT-SPTX
SFP, 1000T, 100 m, RJ-45

AT-SPFX/2
SFP, MMF, 100Mbps, 2 km, 1310 nm, LC

AT-SPFXBD-LC-13
SFP, SMF, 100Mbps, 10 km, 1310/1510 nm, LC-BiDi

AT-SPFXBD-LC-15
SFP, SMF, 100Mbps, 10 km, 1510/1310 nm, LC-BiDi

AT-SPFX/15
SFP, SMF, 100Mbps, 15 km, 1310 nm, LC

Allied Telesis
the solution : the network

Americas Headquarters | 19800 North Creek Parkway | Suite 100 | Bothell | WA 98011 | USA | T: +1 800 424 4284 | F: +1 425 481 3895
Asia-Pacific Headquarters | 11 Tai Seng Link | Singapore | 534182 | T: +65 6383 3832 | F: +65 6383 3830
EMEA & CSA Operations | Incheonweg 7 | 1437 EK Rozenburg | The Netherlands | T: +31 20 7950020 | F: +31 20 7950021

alliedtelesis.com

© 2014 Allied Telesis, Inc. All rights reserved. Information in this document is subject to change without notice. All company names, logos, and product designs that are trademarks or registered trademarks are the property of their respective owners.
617-000420 Rev. M